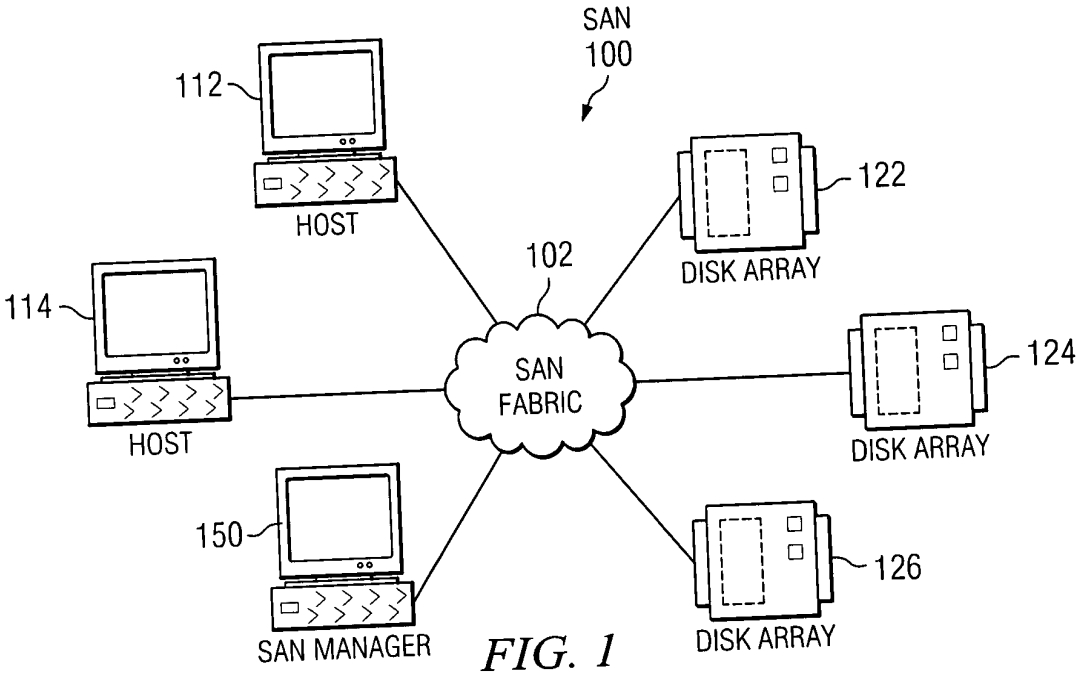

FIG. 1

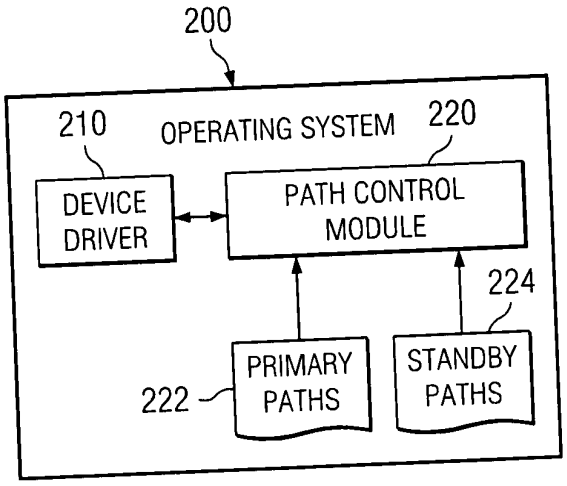

FIG. 2

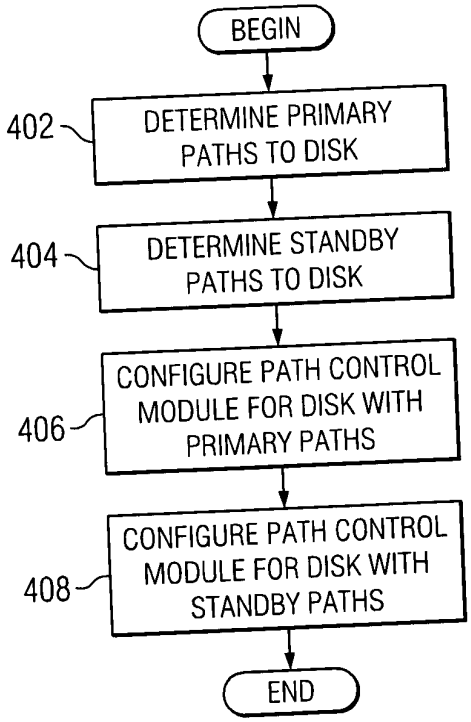

FIG. 4

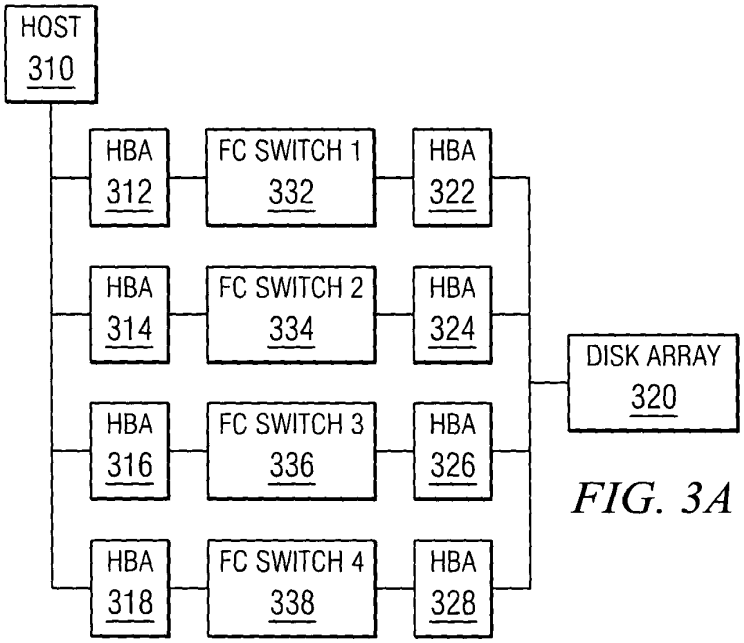
HOST
310
HBA
312
FC SWITCH 1
332
HBA
322
HBA
314
FC SWITCH 2
334
HBA
324
HBA
316
FC SWITCH 3
336
HBA
326
HBA
318
FC SWITCH 4
338
HBA
328
DISK ARRAY
320

FIG. 3A

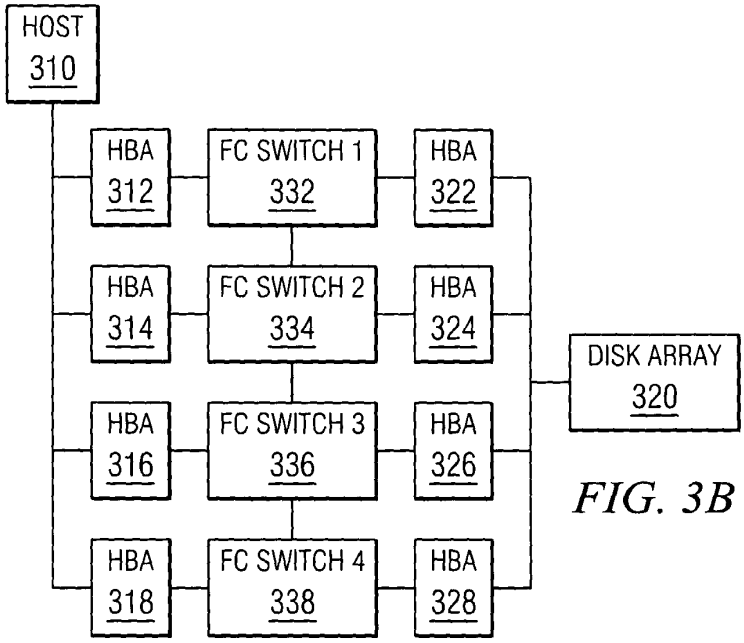
HOST
310
HBA
312
FC SWITCH 1
332
HBA
322
HBA
314
FC SWITCH 2
334
HBA
324
HBA
316
FC SWITCH 3
336
HBA
326
HBA
318
FC SWITCH 4
338
HBA
328
DISK ARRAY
320

FIG. 3B

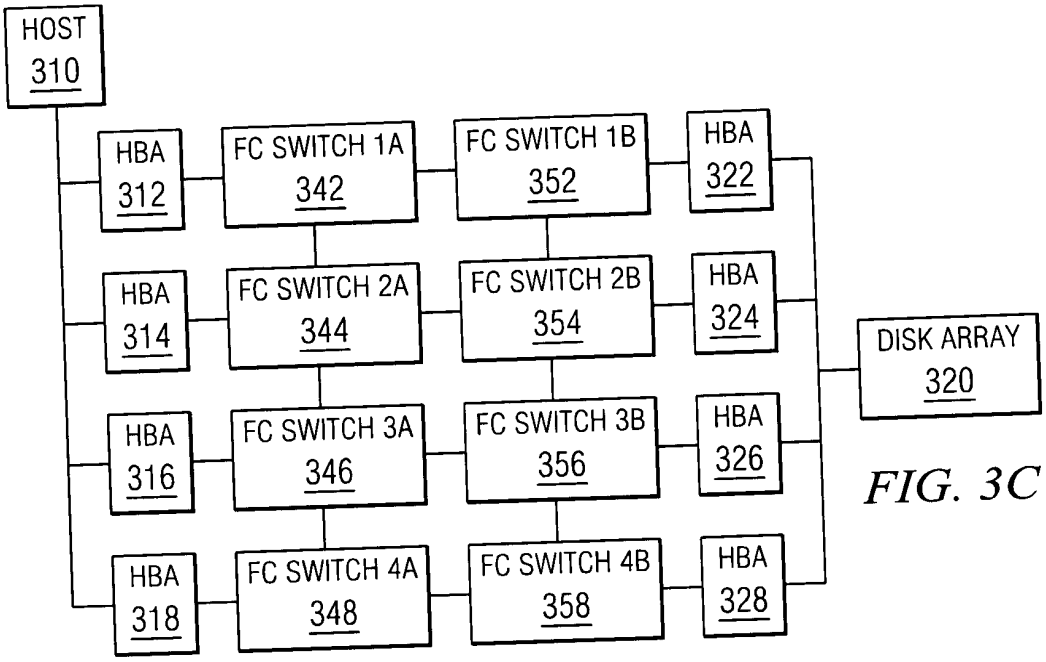
HOST
310
HBA
312
FC SWITCH 1A
342
FC SWITCH 1B
352
HBA
322
HBA
314
FC SWITCH 2A
344
FC SWITCH 2B
354
HBA
324
DISK ARRAY
320
HBA
316
FC SWITCH 3A
346
FC SWITCH 3B
356
HBA
326
HBA
318
FC SWITCH 4A
348
FC SWITCH 4B
358
HBA
328

FIG. 3C

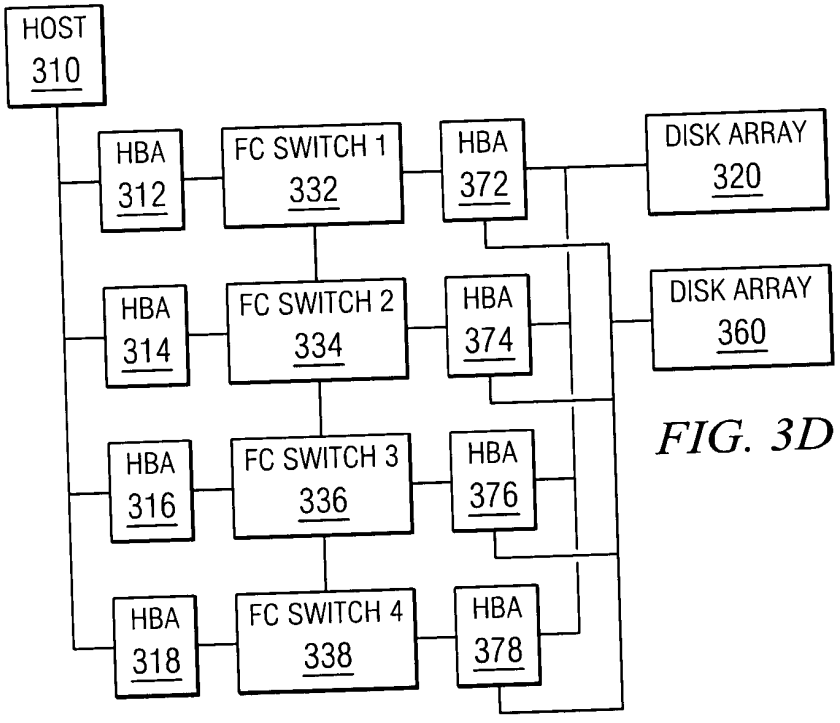
HOST
310
HBA
312
FC SWITCH 1
332
HBA
372
DISK ARRAY
320
HBA
314
FC SWITCH 2
334
HBA
374
DISK ARRAY
360
HBA
316
FC SWITCH 3
336
HBA
376
HBA
318
FC SWITCH 4
338
HBA
378

FIG. 3D

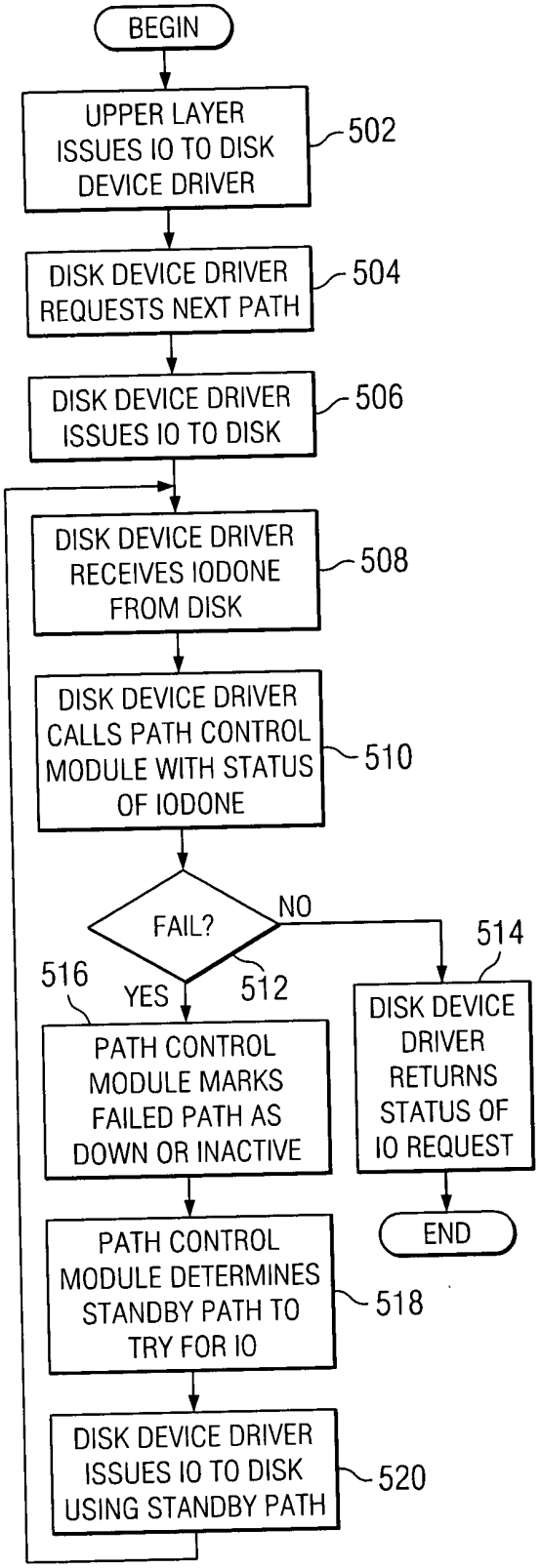
BEGIN
UPPER LAYER ISSUES IO TO DISK DEVICE DRIVER
502
DISK DEVICE DRIVER REQUESTS NEXT PATH
504
DISK DEVICE DRIVER ISSUES IO TO DISK
506
DISK DEVICE DRIVER RECEIVES IODONE FROM DISK
508
DISK DEVICE DRIVER CALLS PATH CONTROL MODULE WITH STATUS OF IODONE
510
FAIL?
NO
512
YES
514
516
PATH CONTROL MODULE MARKS FAILED PATH AS DOWN OR INACTIVE
DISK DEVICE DRIVER RETURNS STATUS OF IO REQUEST
END
PATH CONTROL MODULE DETERMINES STANDBY PATH TO TRY FOR IO
518
DISK DEVICE DRIVER ISSUES IO TO DISK USING STANDBY PATH
520

FIG. 5A

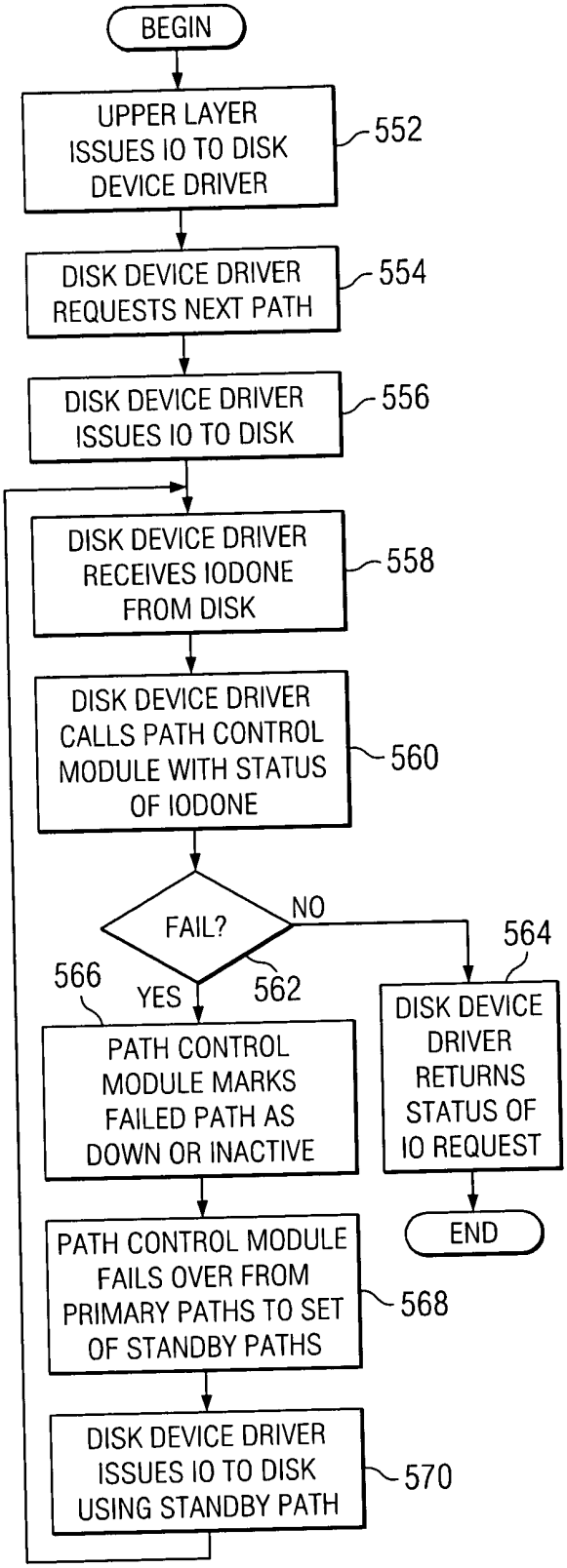
BEGIN
UPPER LAYER ISSUES IO TO DISK DEVICE DRIVER
552
DISK DEVICE DRIVER REQUESTS NEXT PATH
554
DISK DEVICE DRIVER ISSUES IO TO DISK
556
DISK DEVICE DRIVER RECEIVES IODONE FROM DISK
558
DISK DEVICE DRIVER CALLS PATH CONTROL MODULE WITH STATUS OF IODONE
560
FAIL?
NO
562
YES
564
566
PATH CONTROL MODULE MARKS FAILED PATH AS DOWN OR INACTIVE
DISK DEVICE DRIVER RETURNS STATUS OF IO REQUEST
END
PATH CONTROL MODULE FAILS OVER FROM PRIMARY PATHS TO SET OF STANDBY PATHS
568
DISK DEVICE DRIVER ISSUES IO TO DISK USING STANDBY PATH
570

FIG. 5B